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RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/896,301

DATE: 12/21/2001

TIME: 14:29:46

Input Set : N:\Crf3\RULE60\09896301.txt

Output Set: N:\CRF3\12212001\I896301.raw

ENTERED

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5 <110> APPLICANT: Cosgrove, Daniel J
7   McQueen-Mason, Simon
9   Guiltinan, Mark J
11  Shcherban, Tatyana
13  Shi, Jun
17 <120> TITLE OF INVENTION: PURIFIED EXPANSIN PROTEINS
21 <130> FILE REFERENCE: 1194/1C114US3
23 <140> CURRENT APPLICATION NUMBER: 09/896,301
25 <141> CURRENT FILING DATE: 2001-06-29
27 <150> PRIOR APPLICATION NUMBER: 09/092,160
29 <151> PRIOR FILING DATE: 1998-06-05
33 <150> PRIOR APPLICATION NUMBER: 08/440,517
35 <151> PRIOR FILING DATE: 1995-05-12
39 <150> PRIOR APPLICATION NUMBER: 08/242,090
41 <151> PRIOR FILING DATE: 1994-05-12
45 <150> PRIOR APPLICATION NUMBER: 08/060,944
47 <151> PRIOR FILING DATE: 1993-05-12
51 <160> NUMBER OF SEQ ID NOS: 7
55 <170> SOFTWARE: PatentIn Ver. 2.1
59 <210> SEQ ID NO: 1
61 <211> LENGTH: 681
63 <212> TYPE: DNA
65 <213> ORGANISM: Artificial Sequence
69 <220> FEATURE:
71 <223> OTHER INFORMATION: Description of Artificial Sequence: cDNA cucumber
73   expansin
77 <400> SEQUENCE: 1
79 gactacggtg gctggcagag cggccacgcc accttttatg gtggtggtga cgcactctggc 60
81 accatgggtg gagcttgtgg gtatgggaat ttatacagcc aagggtatgg cacgaacacg 120
83 gtggcgctga gcactgcgct atttaacaat ggattaagtt gtggtgcttg cttcgaaatg 180
85 acttgtacaa acgaccctaa atggtgcctt cggggaacta ttaggggtcac tgccaccaac 240
87 ttttgccctc ctaactttgc tctccctaac aacaatggtg gatggtgcaa ccctcctctc 300
89 caacacttcg acatggctga gcctgccttc cttcaaatcg ctcaataccg agctggtatc 360
91 gtccccgtct cctttcgtag ggtaccatgt atgaagaaag gtggagttag gtttacaatc 420
93 aatggccact catacttcaa cctcgttttg atcacaacg tcggtggcgc aggcgacgctc 480
95 cactctgtgt cgataaagggt gtctcgaaat ggatggcaat ccatgtctag aaattggggc 540
97 caaaactggc aaagcaacaa ctatctcaat ggccaaggcc tttcctttca agtcactctt 600
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101 acctatgaag gccctcaatt c                                     681
107 <210> SEQ ID NO: 2
109 <211> LENGTH: 228
111 <212> TYPE: PRT
113 <213> ORGANISM: Artificial Sequence
117 <220> FEATURE:
119 <223> OTHER INFORMATION: Description of Artificial Sequence: rice expansin
123 <220> FEATURE:
125 <221> NAME/KEY: UNSURE

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127 <222> LOCATION: 211
129 <223> OTHER INFORMATION: Xaa is unknown or other.
133 <400> SEQUENCE: 2
135 Ala Gly Gly Gly Trp Val Asn Ala His Ala Thr Phe Tyr Gly Gly Gly
137   1           5           10           15
141 Asp Ala Ser Gly Thr Met Gly Gly Ala Cys Gly Tyr Gly Asn Leu Tyr
143           20           25           30
147 Ser Gln Gly Tyr Gly Thr Asn Thr Ala Ala Leu Ser Thr Ala Leu Phe
149           35           40           45
153 Asn Asn Gly Leu Ser Cys Gly Ala Cys Phe Glu Ile Arg Cys Gln Asn
155           50           55           60
159 Asp Gly Lys Trp Cys Leu Pro Gly Ser Ile Val Val Thr Ala Thr Asn
161   65           70           75           80
165 Phe Cys Pro Pro Asn Asn Ala Leu Pro Asn Asn Ala Gly Gly Trp Cys
167           85           90           95
171 Asn Pro Pro Gln Gln His Phe Asp Leu Ser Gln Pro Val Phe Gln Arg
173           100          105          110
177 Ile Ala Gln Tyr Arg Ala Gly Ile Val Pro Val Ala Tyr Arg Arg Val
179           115          120          125
183 Pro Cys Val Arg Arg Gly Gly Ile Arg Phe Thr Ile Asn Gly His Ser
185           130          135          140
189 Tyr Phe Asn Leu Val Leu Ile Thr Asn Val Gly Gly Ala Gly Asp Val
191 145           150          155          160
195 His Ser Ala Met Val Lys Gly Ser Arg Thr Gly Trp Gln Ala Met Ser
197           165          170          175
201 Arg Asn Trp Gly Gln Asn Trp Gln Ser Asn Ser Tyr Leu Asn Gly Gln
203           180          185          190
207 Ser Leu Ser Phe Lys Val Thr Thr Ser Asp Gly Gln Thr Ile Val Ser
209           195          200          205
W--> 213 Asn Asn Xaa Ala Asn Ala Gly Trp Ser Phe Gly Gln Thr Phe Thr Gly
215           210          215          220
219 Ala His Val Arg
221 225
227 <210> SEQ ID NO: 3
229 <211> LENGTH: 222
231 <212> TYPE: PRT
233 <213> ORGANISM: Artificial Sequence
237 <220> FEATURE:
239 <223> OTHER INFORMATION: Description of Artificial Sequence: rice expansin
243 <220> FEATURE:
245 <221> NAME/KEY: UNSURE
247 <222> LOCATION: (14)..(58)
249 <223> OTHER INFORMATION: Xaa is unknown or other.
253 <400> SEQUENCE: 3
W--> 255 His Met Gly Pro Trp Ile Asn Ala His Ala Thr Phe Tyr Xaa Xaa Gly
257   1           5           10           15
W--> 261 Asp Ala Xaa Xaa Thr Met Gly Gly Ala Cys Gly Tyr Gly Asn Leu Tyr
263           20           25           30
267 Ser Gln Gly Tyr Gly Leu Glu Thr Ala Ala Leu Ser Thr Ala Leu Phe

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Input Set : N:\Crif3\RULE60\09896301.txt

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269          35          40          45
W--> 273 Asp Gln Gly Leu Ser Cys Gly Ala Cys Xaa Glu Leu Met Cys Val Asn
275          50          55          60
279 Asp Pro Gln Trp Cys Ile Lys Gly Arg Ser Ile Val Val Thr Ala Thr
281 65          70          75          80
285 Asn Phe Cys Pro Pro Gly Gly Ala Cys Asp Pro Pro Asn His His Phe
287          85          90          95
291 Asp Leu Ser Gln Pro Ile Tyr Glu Lys Ile Ala Leu Tyr Lys Ser Gly
293          100          105          110
297 Ile Ile Pro Val Met Tyr Arg Arg Val Arg Cys Lys Arg Ser Gly Gly
299          115          120          125
303 Ile Arg Phe Thr Ile Asn Gly His Ser Tyr Phe Asn Leu Val Leu Val
305          130          135          140
309 Thr Asn Val Gly Gly Ala Gly Asp Val His Ser Val Ser Met Lys Gly
311 145          150          155          160
315 Ser Arg Thr Lys Trp Gln Leu Met Ser Arg Asn Trp Gly Gln Asn Trp
317          165          170          175
321 Gln Ser Asn Ser Tyr Leu Asn Gly Gln Ser Leu Ser Phe Val Val Thr
323          180          185          190
327 Thr Ser Asp Arg Arg Ser Val Val Ser Phe Asn Val Ala Pro Pro Thr
329          195          200          205
333 Trp Ser Phe Gly Gln Thr Tyr Thr Gly Gly Gln Phe Arg Tyr
335          210          215          220
341 <210> SEQ ID NO: 4
343 <211> LENGTH: 227
345 <212> TYPE: PRT
347 <213> ORGANISM: Artificial Sequence
351 <220> FEATURE:
353 <223> OTHER INFORMATION: Description of Artificial Sequence: Arabidopsis
355     expansin
359 <220> FEATURE:
361 <221> NAME/KEY: UNSURE
363 <222> LOCATION: (2)..(227)
365 <223> OTHER INFORMATION: Xaa is unknown or other.
369 <400> SEQUENCE: 4
W--> 371 Lys Xaa Ser Val Ala Gln Ser Ala Phe Ala Thr Phe Tyr Gly Gly Lys
373 1          5          10          15
377 Asp Gly Ser Cys Thr Met Gly Gly Ala Cys Gly Tyr Gly Asn Leu Tyr
379          20          25          30
383 Asn Ala Gly Tyr Gly Leu Tyr Asn Ala Ala Leu Ser Ser Ala Leu Phe
385          35          40          45
389 Asn Asp Gly Ala Met Cys Gly Ala Cys Tyr Thr Ile Thr Cys Asp Thr
391          50          55          60
395 Ser Gln Thr Lys Trp Cys Lys Pro Gly Gly Asn Ser Ile Thr Ile Thr
397 65          70          75          80
W--> 401 Ala Thr Asn Leu Cys Xaa Pro Asn Trp Ala Leu Pro Ser Asn Ser Gly
403          85          90          95
W--> 407 Gly Trp Cys Asn Pro Pro Leu Xaa His Phe Asp Met Ser Gln Pro Ala
409          100          105          110

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Input Set : N:\Crif3\RULE60\09896301.txt

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```

413 Trp Glu Asn Ile Ala Val Tyr Gln Ala Gly Ile Val Pro Val Asn Tyr
415      115      120      125
W--> 419 Lys Arg Val Pro Xaa Gln Arg Ser Gly Gly Ile Arg Phe Ala Ile Ser
421      130      135      140
425 Gly His Asp Tyr Phe Glu Leu Val Thr Val Thr Asn Val Gly Gly Ser
427 145      150      155      160
431 Gly Val Val Ala Gln Met Ser Ile Lys Gly Ser Asn Thr Gly Trp Met
433      165      170      175
437 Ala Met Ser Arg Asn Trp Gly Ala Asn Trp Gln Ser Asn Ala Tyr Leu
439      180      185      190
443 Ala Gly Gln Ser Leu Ser Phe Ile Val Gln Leu Asp Asp Gly Arg Lys
445      195      200      205
W--> 449 Val Thr Ala Trp Asn Xaa Ala Pro Xaa Asn Trp Leu Xaa Xaa Xaa Xaa
451      210      215      220
W--> 455 Xaa Xaa Xaa
457 225
463 <210> SEQ ID NO: 5
465 <211> LENGTH: 225
467 <212> TYPE: PRT
469 <213> ORGANISM: Artificial Sequence
473 <220> FEATURE:
475 <223> OTHER INFORMATION: Description of Artificial Sequence: Arabidopsis
477     expansin
481 <400> SEQUENCE: 5
483 Asp Asn Gly Gly Trp Glu Arg Gly His Ala Thr Phe Tyr Gly Gly Ala
485 1      5      10      15
489 Asp Ala Ser Gly Thr Met Gly Gly Ala Cys Gly Tyr Gly Asn Leu His
491      20      25      30
495 Ser Gln Gly Tyr Gly Leu Gln Thr Ala Ala Leu Ser Thr Ala Leu Phe
497      35      40      45
501 Asn Ser Gly Gln Lys Cys Gly Ala Cys Phe Glu Leu Thr Cys Glu Asp
503      50      55      60
507 Asp Pro Glu Trp Cys Ile Pro Gly Ser Ile Ile Val Arg Tyr Asn Leu
509 65      70      75      80
513 Ala Asn Phe Ala Leu Ala Asn Asp Asn Gly Gly Trp Cys Asn Pro Pro
515      85      90      95
519 Leu Lys His Phe Asp Leu Ala Glu Pro Ala Phe Leu Gln Ile Ala Gln
521      100     105     110
525 Tyr Arg Ala Gly Ile Val Pro Val Ala Phe Arg Arg Val Pro Cys Glu
527      115     120     125
531 Lys Gly Gly Gly Ile Arg Phe Thr Ile Asn Gly Asn Pro Tyr Phe Asp
533      130     135     140
537 Leu Val Leu Ile Thr Asn Val Gly Gly Ala Gly Asp Ile Arg Ala Val
539 145     150     155     160
543 Ser Leu Lys Gly Ser Lys Thr Asp Gln Trp Gln Ser Met Ser Arg Asn
545      165     170     175
549 Trp Gly Gln Asn Trp Gln Ser Asn Thr Tyr Leu Arg Gly Gln Ser Leu
551      180     185     190
555 Ser Phe Gln Val Thr Asp Ser Asp Gly Arg Thr Val Val Ser Tyr Asp

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557          195          200          205
561 Val Val Pro His Asp Trp Gln Phe Gly Gln Thr Phe Glu Gly Gly Gln
563      210          215          220
567 Phe
569 225
575 <210> SEQ ID NO: 6
577 <211> LENGTH: 226
579 <212> TYPE: PRT
581 <213> ORGANISM: Artificial Sequence
585 <220> FEATURE:
587 <223> OTHER INFORMATION: Description of Artificial Sequence: Arabidopsis
589     expansin
593 <400> SEQUENCE: 6
595 Asp Tyr Ser Ser Trp Gln Ser Ala His Ala Thr Phe Tyr Gly Gly Gly
597   1          5          10          15
601 Asp Ala Ser Gly Thr Met Gly Gly Thr Cys Gly Tyr Gly Asn Leu Tyr
603      20          25          30
607 Ser Thr Gly Tyr Thr Asn Thr Ala Ala Leu Ser Thr Val Leu Phe Asn
609      35          40          45
613 Asp Gly Ala Ala Cys Arg Ser Cys Tyr Glu Leu Arg Cys Asp Asn Asp
615      50          55          60
619 Gly Gln Trp Cys Leu Pro Gly Ser Val Thr Val Thr Ala Thr Asn Leu
621  65          70          75          80
625 Cys Pro Pro Asn Tyr Ala Leu Pro Asn Asp Asp Gly Gly Trp Cys Asn
627      85          90          95
631 Pro Pro Arg Pro His Phe Asp Met Ala Glu Pro Ala Phe Leu Gln Ile
633      100         105         110
637 Gly Val Tyr Arg Ala Gly Ile Val Pro Val Ser Tyr Arg Arg Val Pro
639      115         120         125
643 Cys Val Lys Lys Gly Gly Ile Arg Phe Thr Ile Asn Gly His Ser Tyr
645      130         135         140
649 Phe Asn Leu Val Leu Val Thr Asn Val Ala Gly Pro Gly Asp Val Gln
651 145         150         155         160
655 Ser Val Ser Ile Lys Gly Ser Ser Thr Gly Trp Gln Pro Met Ser Arg
657      165         170         175
661 Asn Trp Gly Gln Asn Trp Gln Ser Asn Ser Tyr Leu Asp Gly Gln Ser
663      180         185         190
667 Leu Ser Phe Gln Val Ala Val Ser Asp Gly Arg Thr Val Thr Ser Asn
669      195         200         205
673 Asn Val Val Pro Ala Gly Trp Gln Phe Gly Gln Thr Phe Glu Gly Gly
675      210         215         220
679 Gln Phe
681 225
687 <210> SEQ ID NO: 7
689 <211> LENGTH: 227
691 <212> TYPE: PRT
693 <213> ORGANISM: Artificial Sequence
697 <220> FEATURE:
699 <223> OTHER INFORMATION: Description of Artificial Sequence: cucumber

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## VERIFICATION SUMMARY

PATENT APPLICATION: US/09/896,301

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Input Set : N:\Crf3\RULE60\09896301.txt

Output Set: N:\CRF3\12212001\I896301.raw

L:213 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2  
L:255 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3  
L:261 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3  
L:273 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3  
L:371 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4  
L:401 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4  
L:407 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4  
L:419 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4  
L:449 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4  
L:455 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4